

# Teaching Design of "Software Project Feasibility Analysis" Based on Case Discussion

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## Abstract

On the basis of two main problems in the traditional teaching process of "Software Project Management" course, we take the content of "Software Project Feasibility Analysis" as an example, and adopt the "scenario-question-activity" model to improve the effect of students' learning. In the teaching process, students' attention is attracted by the case discussion. Then, further thinking is triggered by the series of questions. Lastly, flexible application of knowledge is promoted by the group-based activities. According to the results of teaching practice, the goal of making students enjoy learning, thinking and applying knowledge is achieved.

## Keywords

Software project management; Feasibility analysis; Case discussion.

## 1. Introduction

"Software Project Management" is a core course for software engineering majors, which aims to cultivate students' ability to use the basic theoretical knowledge of software project management to solve practical problems and the ability of innovative thinking. The above abilities have played key roles in cultivating the theoretical foundation for the technical and management complex talents in software engineering. Since the course "Software Project Management" has the characteristics of complicated knowledge and strong practicality and the university students usually lack experience in software project management, students are less effective in learning this course.

After investigating the teaching process of "Software Project Management" course in our university and several other universities in Guangdong Province, we found that there are mainly two problems in the teaching activities of the course as follows:

- Students are not very motivated to learn [1,2]. The knowledge of the course "Software Project Management" mainly comes from the PMBOK knowledge architecture, which mainly includes nine knowledge areas, namely: scope management, time management, cost management, quality management, integration management, human resource management, communication management, schedule management and risk management. The course contains many theoretical knowledge points, and also students do not have practical experience in project management. The above two aspects cause more obstacles to students' understanding of the course core knowledge, which affects their motivation to learn.
- Students lack the ability to solve practical problems [3,4]. The goal of the course "Software Project Management" is to cultivate students' management ability in software projects. To reach the above goal, in addition to mastering the relevant basic knowledge, a lot of practical experience is also required. Due to the constraints of class time, the teaching process can only focus on the transfer of theoretical knowledge, while ignoring the

cultivation of students' ability to solve various problems in the project management process, so this practice of emphasizing theory over practice cannot improve students' software project management skills.

In order to cultivate students' abilities of learning, thinking and applying knowledge, we have established a teaching mode based on case discussion in the teaching process. In this paper, we take the section of "Software Project Feasibility Analysis" as an example to introduce the teaching design of the course.

## 2. Teaching Goals

Our teaching goals consist of the follows aspects:

- (1) To understand the purpose of feasibility analysis and the four aspects included.
- (2) To master the details of technical feasibility analysis and the key points should be noticed.
- (3) To master the content and methods of economic feasibility analysis.
- (4) To be familiar with the content of risk control feasibility and feasibility of other factors.
- (5) To master the method to write the feasibility analysis report.
- (6) To master the latest technology development research methods in the field of the course.

## 3. Teaching Strategies

Software project feasibility analysis includes five aspects: technical feasibility, economic feasibility, risk control feasibility, feasibility of other factors and feasibility analysis report preparation. Among them, the first two aspects are the teaching emphasis and the last one is the teaching difficulty! In order to greatly attract students' interest in learning and promote the absorption and application of knowledge, the following teaching methods are proposed.

Firstly, before introducing the content of software project feasibility analysis, we first present a case of project loss due to poor feasibility analysis, and ask questions to motivate students to discuss! Then, we introduce the realistic significance of this section, the purpose of conducting feasibility analysis and its contents. At the same time, based on the above case, we explain the value of project managers doing their best and actively improving their professionalism.

Secondly, We use inductive method to summarize all aspects of technical feasibility analysis and explain five aspects of technical feasibility analysis based on real project scenarios, in order to make students grasp the content of technical feasibility analysis and deeply understand the key issues. In addition, students are asked to conduct research on the latest technical developments in the field and submit the results of the research.

Thirdly, After the introduction of "people's misconceptions about economic feasibility analysis", students discuss this topic, and the aim is to help students form a correct understanding of economic feasibility analysis. Also, we explain the methods of economic feasibility assessment based on cases, so that students can have a clear understanding of the methods of economic feasibility analysis.

Fourthly, based on the case study, we explain the feasibility of risk control and other factors, and the aim is to make students have a concrete understanding of the above aspect.

Lastly, a comprehensive application session is set. On the basis of the presentation of a sample project feasibility analysis report, students are required to complete the discussion and feasibility analysis report of the given case in groups. Then, they can master the application methods of feasibility analysis knowledge.

## 4. Teaching Procedure Design

Step 1:

- The goal: To understand the need for project feasibility analysis, and the knowledge points it contains
- Teacher Activity:
  - ✓ Presenting the case of a project loss due to a poorly done feasibility analysis and asking students to discuss the problem.
  - ✓ Based on students' answers to the necessity of introducing feasibility analysis and what it includes.
  - ✓ On the basis of the case study, explaining the reality of project managers doing their best and actively learning in order to improve their professionalism.

#### Step 2:

- The Goal: To master the content of technical feasibility analysis and the issues that should be noted.
- Teacher Activity
  - ✓ Summarizing what is included in technical feasibility.
  - ✓ Explaining the issues that should be noticed in feasibility analysis based on real project scenarios.
  - ✓ Assignment of a research assignment on the latest technological development in the field.

#### Step 3:

- The Goal: To know the purpose and content of economic feasibility analysis.
- Teacher Activity:
  - ✓ Showing "people's misconceptions about economic feasibility analysis" and asking students to think about it.
  - ✓ Guiding thoughts of students and presenting the content of economic feasibility analysis. Based on the case, explaining the method of economic feasibility analysis.

#### Step 4:

- The Goal: To master the method of economic feasibility analysis.
- Teacher Activity:
  - ✓ To explain the method of economic feasibility analysis based on case discussion.

#### Step 5:

- The Goal: To understand the content of risk control and other aspects of feasibility analysis.
- Teacher Activity:
  - ✓ Based on the case discussion, introducing the details of the feasibility analysis of risk control and other aspects.

#### Step 6:

- The Goal: To master the application of feasibility analysis methods and form the skill of writing feasibility analysis reports.
- Teacher Activity:
  - ✓ Explaining the method of writing the feasibility analysis report under the guidance of the sample project.
  - ✓ Asking students to discuss the feasibility analysis according to the given case and complete the feasibility analysis report in groups.

## 5. Conclusion

This paper firstly proposes a case-based teaching model based on two main problems in the teaching process of the course "Software Project Management". Then, we introduce the

teaching objectives, teaching strategies and teaching process design of the course by taking the content of "Software Project Feasibility Analysis" as an example. After the teaching practice in the class, it has been found that this teaching style can effectively enhance students' interest in learning and improve their ability to absorb and apply knowledge.

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